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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/847,182	05/01/2001	Stephen G. Baker	D5154	5097

30409 7590 11/08/2002

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ART UNIT	PAPER NUMBER
1714	3

DATE MAILED: 11/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

<b>Application No.</b> 09/847,182  <b>Examiner</b> Katarzyna W. Lee	<b>Applicant(s)</b> BAKER ET AL.	
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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-15 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).\* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: _____.                                   |

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claims 1, 5, 10, 12-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Recitation of “at least about 1%” renders claims 1, 5, 13 and 14 indefinite, since it is not clear what the amount of ferric oxide is.

Recitation of “less than about” renders claims 1, 13 and 14 indefinite, since it is not clear what the amount of ferric oxide is.

Recitation of “effective amount of binder” renders claim 10 indefinite, since it is not clear as to what this amount is or what the effective amount is supposed to achieve.

The use of trademarks and tradenames in the claim 12 is improper because the manufacturer is under no obligation to continue making the same material under given trademark nor continue to selling anything under given trademark. The discontinued use of trademarks or changing of the material sold under the trademark renders the claim meaningless. See MPEP 608.01 (v).

***Claim Objections***

3. Claims 2, 6, 7, 9 objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

In claim 2, the applicant recites that the ferric oxide comprises about 1% by weight. The claim is objected to, since claim 1 reads on about 1%. Therefore the applicant did not further limit the scope of the invention.

In claim 6, the applicant recites that the ferric oxide comprises about 1% by weight. The claim is objected to, since claim 1 reads on about 1%. Therefore the applicant did not further limit the scope of the invention.

In claim 7, the applicant recites that the Lithia containing compound is utilized in the amount of about 1% to about 2.5%. Claim 5, on which claim 7 depends recites the amount of Lithia compound as about 1.5% to about 3.5%. The applicant failed to further limit the invention, since independent claim 5 does not enable for amounts lower than about 1.5%

In claim 9, the applicant recites that the Lithia containing compound is utilized in the amount of about 1%. Claim 5, on which claim 9 depends indirectly recites the amount of Lithia compound as about 1.5% to about 3.5%. The applicant failed to further limit the invention, since independent claim 5 does not enable for amounts lower than about 1.5%

4. Claim 15 is objected to because of the following informalities: Claim 15 of the present invention recites "...group consisting of . . .-spumene...". Based on the specification, the examiner understands, that the applicant utilizes  $\alpha$ -spumene, therefore that is how the claim is understood. Appropriate correction is required.

*Specification*

5. The disclosure is objected to because of the following informalities: On page 2, line 17, the specification recites "...group consisting of . . .-spumene...". Based on the context of the application, and for prompt prosecution of the case, the examiner will treat this recitation as  $\alpha$ -spumene. Appropriate correction is required.

*Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1, 2, 4-8, 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brander (US 5,911,269).

The prior art of Brander'269 discloses composition for making foundry cores and molds with binder, sand aggregate and anti-veining additive.

According to claims of the prior art of Brander'269, the aggregate is utilized in the amount of 80-90%. Sand recited in the claims of Brander'269 is silica sand.

The additive comprises lithium-containing mineral and iron oxide. The lithium-containing mineral is selected from group consisting of  $\alpha$ -spodumene, amblygonite,

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montebrasite, petalite, lepidolite, zinnwaldite, eucryptite and lithium carbonate. These are exactly the same minerals as those required by the present invention. The amount of the lithium compound according to the claims of the prior art is in a range of 0.001-2.0%. The specification of the prior art of Brander'269 in the examples in Table 4 further enables to use amounts of the lithium containing compounds as high as 3% with results comparable, where the number of veins is zero. It would therefore be obvious to utilize amounts of the lithium-containing compound higher than 2% and up to 3%.

Second component of the additive is iron oxide, wherein the specification teaches that the currently accepted method of making foundry cores and molds employ addition of 1-3% of iron oxides ( $Fe_2O_3$ ). The prior art of Brander'269 does not teach away from this method and utilizes iron oxide in the examples.

Binder component of the prior art of Brander'269, as cited in the example includes phenolic urethane binder. Specification, in col. 3, further enables one to utilize binders such as phenolic binder, furan, sodium silicate, polyester, acrylic and epoxy. The amount of the binder is 0.5-10% by weight of the aggregate.

In the method of the prior art of Brander'269, the sand, anti-veining additive and binder components are mixed together then shaped to form mold or core of desired pattern.

The difference between the present invention and the prior art of Brander'269 is recitation of ferric oxide and Veinseal 14000.

With respect to the recitation of the ferric oxide, it should be pointed out that both the ferric oxide and iron oxide of the prior art of Brander'269 have chemical formulas of  $Fe_2O_3$ . Therefore the difference between the two components is purely in their nomenclature.

With respect to the recitation of Veinscal 14000, although the use of trademarks has been addressed in paragraph 2 of this office action, the actual mineral components containing the lithium compound is the same in both the present invention and the prior art of Brander'269.

Use of a lithium- containing compound in conjunction with iron or ferric oxides in Brander'269 constitutes an additive, which when incorporated into the sand cores and molds reduces thermal expansion defects such as veining, scabs and buckles.

In the light of the above disclosure, it would have been obvious to one having ordinary skill in the art to utilize the prior art of Brander'269 and thereby obtain the invention at hand. Use of the composition of Brander'269 would result in foundry cores having reduced thermal expansion defects.

10. Claims 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brander (US 5,911,269) as applied to claims 1, 2, 4-8, 10-15 above, and further in view of Brander (US 4,735,973).

The discussion of the disclosure of the prior art of Brander'269 from paragraph 9 of this office action is incorporated here by reference.

The difference between the present invention and the disclosure of the prior art of Brander'269 is the recitation of the lake sand as an aggregate in foundry cores and molds.

With respect to the above difference, the prior art of Brander'973 discloses another composition for making foundry cores and molds, which also results in composition having reduced thermal expansion defects.

The composition comprises metal oxides such as titanium dioxide and ferric oxide, wherein the additive is called a veinseal. The additive is utilized along with the binder and sand aggregate.

The sand of the prior art of Brander'973 includes silica sand, zircon sand, lake sand, olivine sand and the like.

The prior art of Brander'973 establishes that the sand aggregates listed in the specification are all functional equivalents and can therefore be equally well utilized in making foundry cores. Use of lake sand instead of silica sand would not adversely affect the properties that the prior art of Brander is attempting to achieve, which is reduction in thermal expansion defects. In addition, the sand aggregates targeted by the prior art of record are utilized for the same purpose.

In the light of the light of the above disclosure, it would have been obvious to one having ordinary skill in the art at the time of the instant invention to utilize lake sand in the composition of Brander'269 instead of silica sand and thereby obtain the present invention. Utilizing lake sand would also result in a foundry core composition having reduced thermal expansion defects.

#### *Additional Prior Art Disclosure*

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Geoffrey (US 5,621,036) and Nakayama (US 5,057,155).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katarzyna W. Lee whose telephone number is (703) 306-5875. The examiner can normally be reached on Mon-Thurs 6:30 AM-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (703) 306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

*Katarzyna W. Lee*  
KIWL  
November 5, 2002